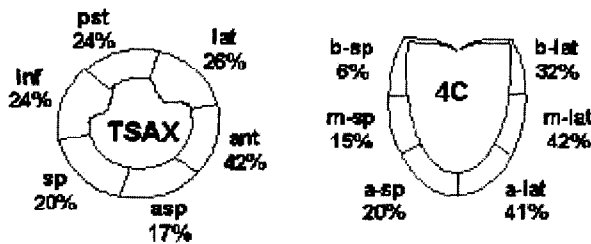


454A ABSTRACTS - Noninvasive Imaging

JACC March 19, 2003

(21%), anteroapical (0%) and anterior (14%) segments. **Conclusion:** Use of HI with TEE improves endocardial visualization and allows partial assessment of myocardial perfusion, which may prove beneficial in the intraoperative setting.



1188-33

Left Ventricular False Tendons: Echocardiographic Curiosity or Clinically Relevant?

Satish Kenchaiah, Emelia J. Benjamin, Jane C. Evans, Daniel Levy, Ramachandran S. Vasan, Framingham Heart Study, Framingham, MA, Boston University School of Medicine, Boston, MA

Background: Although Left ventricular false tendons (LVFT) are generally considered as normal anatomic variants, they have been associated with innocent precordial murmurs, ventricular arrhythmias, and repolarization abnormalities in small case series. The correlates of LVFT in the community are unknown.

Methods: We examined the cross-sectional clinical, electrocardiographic (ECG), and echocardiographic (echo) correlates of LVFT in 101 subjects with LVFT (mean age 56, 45% women) and 151 subjects without LVFT (mean age 57, 44% women) in the Framingham Heart Study.

Results: After adjusting for age and sex, LVFT were associated with innocent precordial murmurs, ECG LV hypertrophy, and echo LV systolic dysfunction (Table). Body mass index was inversely related to the presence of LVFT. The relations between LVFT and precordial murmurs or ECG LV hypertrophy remained unchanged after further adjustment for body mass index. LVFT were not associated with hypertension, ECG ventricular premature beats or repolarization abnormalities, and echo LV mass, wall thickness, or diameter.

Conclusions: In our community-based sample, LVFT were observed more commonly in lean subjects, likely due to better visualization. Our study confirms the association of LVFT with precordial murmurs, and identifies ECG LV hypertrophy and LV systolic dysfunction as additional correlates not reported in prior literature.

LVFT and Correlates

Characteristic	LVFT present (n=101)	LVFT absent (n=151)	p-value *
Body mass index (kg/m ²), mean±SD	25.3±5.0	27.0±5.2	0.009
Innocent precordial murmurs (%)	10	2	0.001
Ventricular premature beats on 10-second ECG rhythm strip (%)	4	2	0.33
ECG-LV hypertrophy (%)	9	2	0.014
LV ejection fraction <50% (%)	10	4	0.049

*Adjusted for age and sex

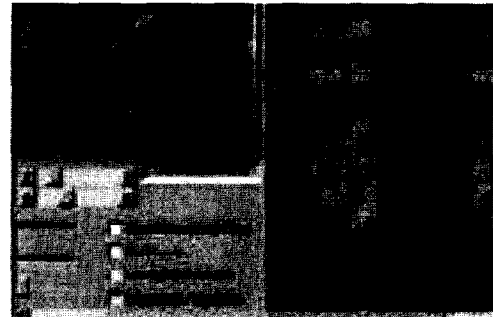
1188-34

Assessment of the Extent of Ischemic Aneurysm as Defined by Curved M-Mode Analysis of Regional Strain Rate: An In Vivo Study in a Chronic Animal Model

Julia C. Swanson, Sebastian T. Schindera, Michael Jones, Crispin H. Davies, Rosemary A. Rusk, David J. Sahn, Oregon Health & Science University, Portland, OR, National Heart, Lung & Blood Institute, Bethesda, MD

Background: Strain rate imaging (SRI) appears to be sensitive to regional dysfunction in ischemic disease because it discriminates intertarget deformation from tethered passive motion or cardiac motion. **Methods:** We studied 8 sheep (30-47kg) 8-10 weeks after LAD or diagonal occlusion was performed to produce a chronic ischemic aneurysm. Two-D TDI/SRI images were recorded using a GE/VingMed Vivid FIVE system. After study over 4 stages (baseline, metoprolol, dobutamine and transfusion of blood), the animals' hearts were arrested and removed for pathologic study. Digital TVI SRI loops were measured on a custom version of Echopac® that allows derivation of curved M-modes displaying SRI color codes of yellow to red for compression, blue for expansion and green for no deformation. The arc lengths were measured and compared to the endocardial infarct zone area as a percent of total endocardial area at postmortem. **Results:** Infarct/aneurysm area ranged from 15-33%, mean 21.3 ± 6.1(SD) and no-deformation zone length as a measure of endocardial length in the 2-chamber view ranged from 7-26%,

mean 17.3 ± 4.2. The best correlation between infarct area and no-deformation arc length in systole was $r = 0.84$, $p < 0.05$, for the baseline stage.



POSTER SESSION

1189 New Echocardiographic Methods for Assessing Ventricular Function

Tuesday, April 01, 2003, Noon-2:00 p.m.

McCormick Place, Hall A

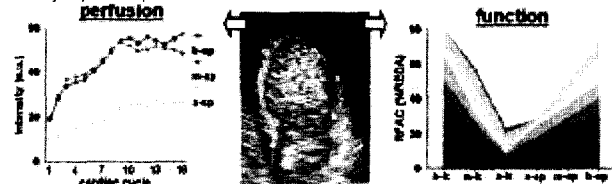
Presentation Hour: 1:00 p.m.-2:00 p.m.

1189-35

Automated Simultaneous Echocardiographic Quantification of Myocardial Perfusion and Regional Left Ventricular Function in Patients Post Myocardial Infarction

Victor Mor-Avi, Jeanne M. DeCara, James E. Bednarz, Lynn Weinert, Keith A. Collins, Enrico G. Caiani, Roberto M. Lang, University of Chicago, Chicago, IL

We tested the feasibility of an automated technique for objective, simultaneous assessment of myocardial perfusion and LV function in humans. **Methods.** We studied 8 patients within 24h of primary PTCA after proximal LAD myocardial infarction (MI). Power modulation (PM) images were obtained during iv infusion of Definity with prototype color-encoding of endocardial motion (Philips). Color information was used to obtain regional fractional area changes and automatically define myocardial regions of interest. Regional end-systolic PM intensity was measured over time to calculate post-impulse steady-state contrast level and replenishment rate. An expert reader reviewed gray-scale images for visible perfusion defects and wall motion abnormalities. **Results.** 6/8 patients had perfusion defects accompanied by regional wall motion abnormalities: 4 showed no perfusion and 2 had "patchy" myocardial contrast. The remaining 2 patients showed delayed contrast replenishment with normal wall motion. Contrast level and replenishment rate were 61% and 51% lower in segments where perfusion defects were noted. In all patients with wall motion abnormalities, thin color bands were noted in hypokinetic segments, resulting in a 58% decrease in fractional area change. **Conclusions.** Contrast-enhanced, color-encoded PM images allow simultaneous, real-time imaging and quantitative analysis of myocardial perfusion and regional LV function, which may be useful to predict functional recovery in patients post MI.



1189-36

Quantitative Assessment of Left Ventricular Myocardial Viability During Low Dose Dobutamine Stress Echocardiography in Combination With Color Tissue Doppler Imaging

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Background: Myocardial viability in patients with myocardial infarction has been assessed by low dose dobutamine stress echocardiography (DSE). Color tissue Doppler imaging (TDI) can optimize myocardial velocity profile (MVP) from endocardium to epicardium. Non-isotropic averaging algorithm (PowerView, Toshiba Corp., Japan) was newly developed for obtaining stable MVP.

Purpose: To quantitatively detect viable myocardial region using MVP during low dose DSE.

Methods: Subjects consisted of 12 patients with previous myocardial infarction with myocardial contraction abnormality scintigraphically (^{99m}Tc-MIBI) expected to have viable myocardium. Dobutamine was administered incrementally by 10 minutes interval (1, 3, 5, 10, μ g/kg/min). Color TDI in parasternal short-axis view was recorded during DSE.